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ABSTRACT

The basic problem in learning the English language is that it is a visual, not phonetic, language. Because they have not learned many of the basic visual abilities, many children do not have an adequate skill of visualization. The sequence of visual development includes: general movement patterns of action, special movement patterns of action, eye movement patterns to reduce action, communication patterns to replace action, and visualization patterns to substitute for action. Visual memory for spelling can be enhanced by having a child practice the following steps: repeatedly trace over a word on a chalkboard, saying the name of each letter as traced. As the child learns to visualize, he learns to observe; and recognizing a misspelled word becomes a process of matching the word visualized. (CK)

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Spelling: A Visual Skill

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A discussion of visual imagery and the manipulation of visual symbols as basic skills in the ability to spell.

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THE following statement was made by Patricia McBroom: "The English language has never offered a very good fit (match) between its written and spoken forms. For reasons reaching into the misty past, English is burdened with such spelling vagaries as *s*ilo, *sigh*t, *ps*ychology, *c*yclone, *c*ider – all for a single sound. Then there are t*ru*e, d*o*, l*ou*, br*ew*, th*rough*, z*oo*, and sh*oe*. On the other hand, a single spelling stands for c*ough*, furl*ough*, *ough*t, pl*ough*, and thor*ough*. One can only sympathize with youngsters learning to read and write."[1] It has been observed that *ghoti* spells *fish* if we use the sound of *gh* in en*ough*, the *o* in w*o*men, and the *ti* in no*ti*on. Such inconsistent matches between what is seen and what is said makes spelling chaotic. Youngsters need more than sympathy!

Developed by an Englishman, Sir James Pitman, the forty-four-letter Initial Teaching Alphabet (ITA) retains twenty-four Roman letters and adds twenty new ones, providing a separate symbol for each supposedly distinct sound in English. The result is phonetic spelling. But new alphabets, adding more visual symbols which must be discriminated by their shapes in order to know what they sound like, just add to the confusion. Eventually the child will return to the world of the twenty-six-letter English alphabet and the basic problem.

The basic problem, from an optometrical viewpoint, based on clinical experience in visual development and child development is in form discrimination and adequate visual imagery or visualization. It is not in the "listen" of the shapes. No matter how distinctly one listens, he cannot hear the difference in the symbol unless he can visualize that symbol.

English is a visual language, not a phonetic language. Miss McBroom's examples make clear that saying a word (to hear it) does not produce sounds which insure the auditory or visual recognition of the letters required to spell the word. With the help of six pages of fine print in *Webster's New Collegiate Dictionary* on how to pronounce words, and six pages of rules on how to spell words, one might spell one's way through her examples. But it has been my experience that good spellers do so visually, not phonetically.

What process do you, the reader, use to spell? How do you know how to spell the word which names our planet? Do you hear *all* the letters?

[1] "Wuns Upon a Tiem," *Science News*, LXXXXI (February 11, 1967), 145.

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Where does the *a* come from? Do you add it between the *e* and the *r* because of a rule you remember, or do you remember the individual speech sounds for each letter and their exact sequence? Or do you "see" the word in your mind's eye and read off the letters as you see it written or printed? Do you visualize?

Visualization is a process of visual comparison, visual recall (or memory), and visual imagery that allows one to see or experience again a previously seen or experienced object or event. It is the ability to "see" and know some thing or place, idea or concept of the past, to manipulate or view it from any angle and perspective. It is the highest order of thinking that man can do. It becomes covert and abstract, without movement; it is learned and thus trainable.

Most people believe their thinking is done in terms of mental pictures of places, events, and things and/or representative words, together with words which represent abstract ideas and concepts rather than real objects. This is visualization. The ability and skill of visualization is one of the goals toward which optometrists guide and lead their patients with optometric visual training and vision-guidance activities.

Unfortunately, because they have not learned many of the basic visual abilities, many children do not have an adequate skill of visualization. Visualization is the result of many prior experiences (movements) of the human organism *matched with what is seen* during these experiences. Some children do not match (integrate or associate) what they feel or do with what they see because they have not learned to align and maintain alignment of the eyes on what they are feeling or doing while they are doing it. Consequently they are unable to visually recall the movements they performed during the event. To quote G. N. Getman, "The look of a word and the feel of a word are both necessary for an A grade on a spelling paper."[2] Many of these same children cannot adequately motor plan; that is, they have difficulty visualizing and planning the movements required to perform a task. For example, ask a child to hop on his right foot and watch him visualize the location of his right leg and foot, watch how he plans to lift his left leg, shift his weight, and propel his body off the floor and move forward. Some visualize so inadequately that they are unable to control and integrate the muscle movements to accomplish such a relatively simple movement pattern.

THE SEQUENCE of visual development, which leads to an adequate visualization ability, has been described extensively.[3] It parallels the general development of the child through the following stages:

- General movement patterns *for* action.
- Special movement patterns *of* action.
- Eye movement patterns *to reduce* action.
- Communication patterns (speech and audition) *to replace* action.
- Visualization patterns *to substitute* for action, speech, and time.

As a foundation and prerequisite for learning to visualize, the child first learns the skill of motor control and coordination, with vision doing the monitoring, steering, and directing of the movements. The movement of the whole body and the coordination of the parts of the body, visually steered,

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[2] G. N. Getman, *Operational Vision*, Series 4, No. 6 (Duncan, Okla.: Optometric Extension Program, 1960), p. 29.

[3] Getman, *How to Develop Your Child's Intelligence* (Luverne, Minnesota, 1962); W. H. Henry, *Child Vision Care*, Series 10, Nos. 2–12 (Duncan, Okla.: Optometric Extension Program, 1965); Arnold L. Gesell, Frances L. Ilg, Glenna E. Bullis, and Gerald N. Getman, *Vision, Its Development in Infant and Child* (New York, 1949).

are basic to the special movements wherein eyes direct the arm, hand, and fingers during writing, forming the shapes of individual letters which combine to produce a word being spelled. The adequate control of the movements of the eyes is learned, not only to move eyes quickly and accurately, but to cause eyes to remain fixed, immobile, on the letters and words to be seen, read, spoken, and reproduced in spelling. The child learns the communication skill of listening, to differentiate speech sounds, and he learns to speak, to imitate and match sounds with his own voice, to match what he hears and says with what he sees. Then he can learn to look at a word and know what it sounds like; or listen to a word and know how it looks.

Once these skills and experiences have been acquired, he is ready to learn to visualize. Vision, as a process, can then be used for the first of the three components of visualization, the skill of visual comparison. The child can learn visual comparison of size, shape, directionality, and solidity.

At the first level, the child looks directly at one object and then another for visual comparisons. In the beginning he may need to *feel* the objects to know what they *look* like. He can learn through such activities as solving jigsaw puzzles; sorting things, such as silverware or canned goods, as to size and shape; comparing chairs, tables, buildings; describing differences in trees, leaves, flowers, animals; talking about the differences and similarities of a square and a rectangle; matching labels from groceries with replacement items at the store. When he knows differences and similarities by looking, he is ready for the next phase.

The second phase of visualization development is visual memory or recall. Many experiences in preschool years lead to this skill, and structured play can enhance the ability. For example, have the child look at objects and then feel them in a bag, naming each without looking. Another amusing game which builds visual memory is to have the child briefly view objects on a table, look away, then name the objects. Removing one of the objects and having to visualize and name the removed item prepares the child for visualizing the letter missing from *them* to form *the*. As Getman says, "The visual memory of things becomes practice for the visual memory of symbols for things – words."[4]

Another exercise is to expose briefly a magazine picture containing several familiar objects and have the child name and describe them. Cut out shapes and expose briefly, asking the child to arrange his matching construction paper shapes in the same direction and relative position. Draw a shape on a chalkboard, erase, and ask the child "make one like it." Elaborate this activity by drawing two then three or more shapes, asking for accurate reproductions. Use vertical, horizontal, and diagonal lines to form the shapes.

Getman states, "Spelling (whether the response is oral or written) is the visualization of the movements required to reproduce the letters which combine to form the word, which ability develops to the stage where the movements are sublimated to the skill level and only the word is then visualized."[5]

Visual memory for spelling can be enhanced by having the child practice the following steps:

- Repeatedly trace over (accurately, in flowing strokes) a word on a chalkboard (using *large* letters), saying the name of each letter as traced (seeing the shape, saying the name, hearing the name, feeling the shape while moving over the letters).

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[4] Getman, *How to Develop Your Child's Intelligence, op. cit.*

[5] Getman, *Notes from Visual Development Seminars, 1957–1965* (Section on Child Vision Care and Guidance, Optometric Extension Program).

- Tracing the word without touching the chalk to the board (accurately tracing and naming the letters).
- Turning away and tracing in the air (again with accuracy of movement and naming).
- Repeating the tracing with eyes closed.

Ask the child if he can "see" the word in his mind while he traces in the air and when finished. If so, he is learning to visualize, to visually recall. If not, all the foundations for vision outlined above are not adequate and should be reviewed for areas which need reinforcement and movement experiences. If he can "see" the word, ask him to "read" and say the letters (spell). Can he visualize the word well enough to "see" the letters and "read" them backwards? Can he "see" the letters which are tall and extend above the others, such as *l*, *h*, *k*, etc.; those that extend below the others, such as *y*, *g*, *p*, etc.? Can he then write the word on the chalkboard or on paper?

THE THIRD component of visualization, that is, visual imagery or visual projection, is an outgrowth of visual comparison and visual memory. Visual projection is knowing the difference in the feel of objects and how they look without feeling or seeing them. It is the ability to talk about things and places without being there to look. It is what produces a "good memory," the ability to visualize past movements, experiences, things heard or read.

The development of this skill is accomplished by describing something not in immediate view (a car, building, machine, animal, etc.) and asking the child to close his eyes to "see" and guess what it is. Then have the child describe a thing for you to guess. Talk about what the things are for, how they work. Ask him to describe how he would get from one place to another – from the breakfast room to his bedroom, from school to home, from the park to the grocery store. The description should include the directions turned, objects passed and their location, color, size, distance, etc. Give him several things to do – things to get or put away, describing where, how many – to help him learn the visualization of the order and sequence of the movements in order to successfully respond.

As the child learns to viualize, he learns to look and observe. He learns to see, listen, and know more. He learns to see more in less time. He learns the visual ability of substituting symbols for experiences, and he learns symbol manipulation as a visual activity which, when adequately learned, produces a good writer, good reader, and a good speller. When he can visualize a word, he can spell it, regardless of how it sounds.

Recognizing a misspelled word becomes a process of matching the word seen with the word visualized and noting the mismatch. It is "seeing" the missing letters, the extra letters, or the letters that are misplaced.

Through the clinical experience of thousands of optometrists, the evidence is overwhelming that visualization is learned and thus trainable. Most children do not learn it well enough. If they are not given the right sort of help in learning and maintaining the ability to visualize, a constantly losing battle is fought by the teacher, the parent, and the child. If a child does not progress as he should through the stages of the development of vision and development of visualization, a complete visual performance study should be made by a professional skilled in visual care. Visual training of a much more elaborate nature than that described here may be provided. Preventive optometric care can avoid many of the scholastic (including spelling) and social problems which are certain to follow any lack of skill in eye movements, eye-hand coordination, or other visual-motor activities.